Missouri Botanical Garden
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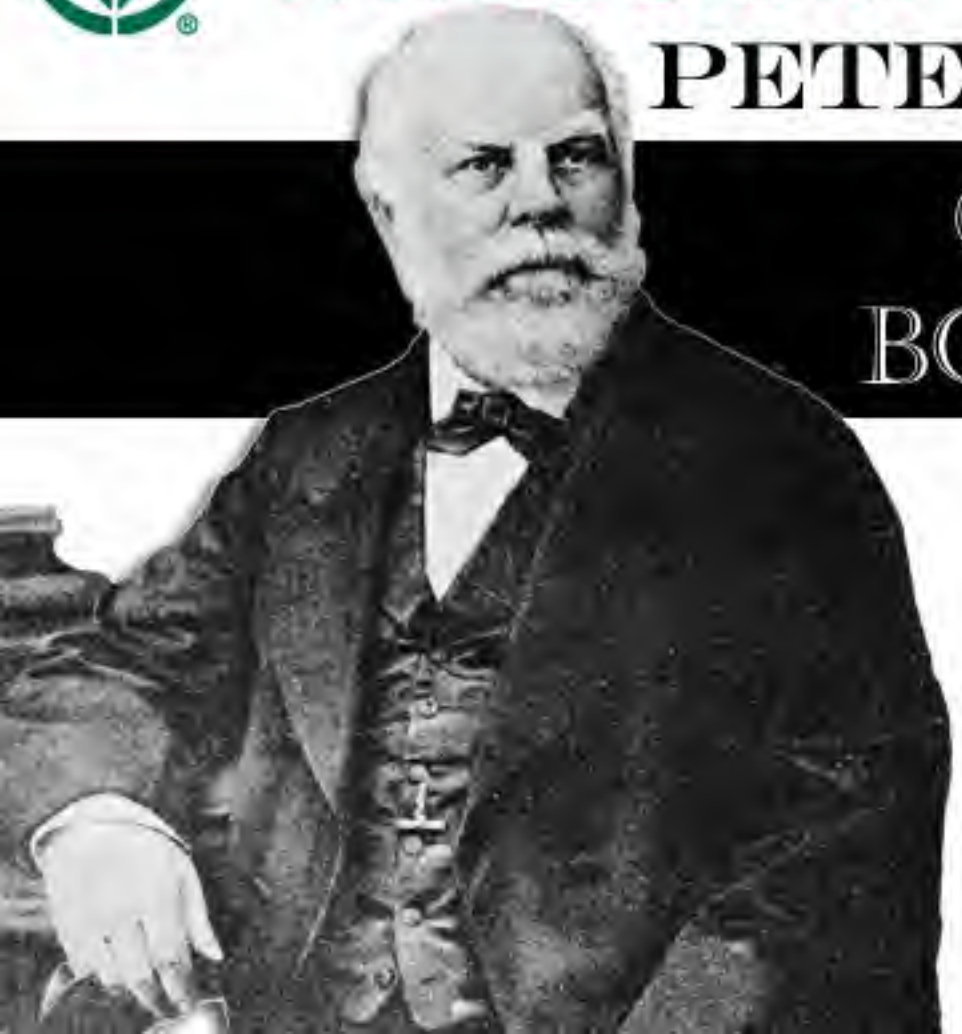
George Engelmann Botanical Notebooks



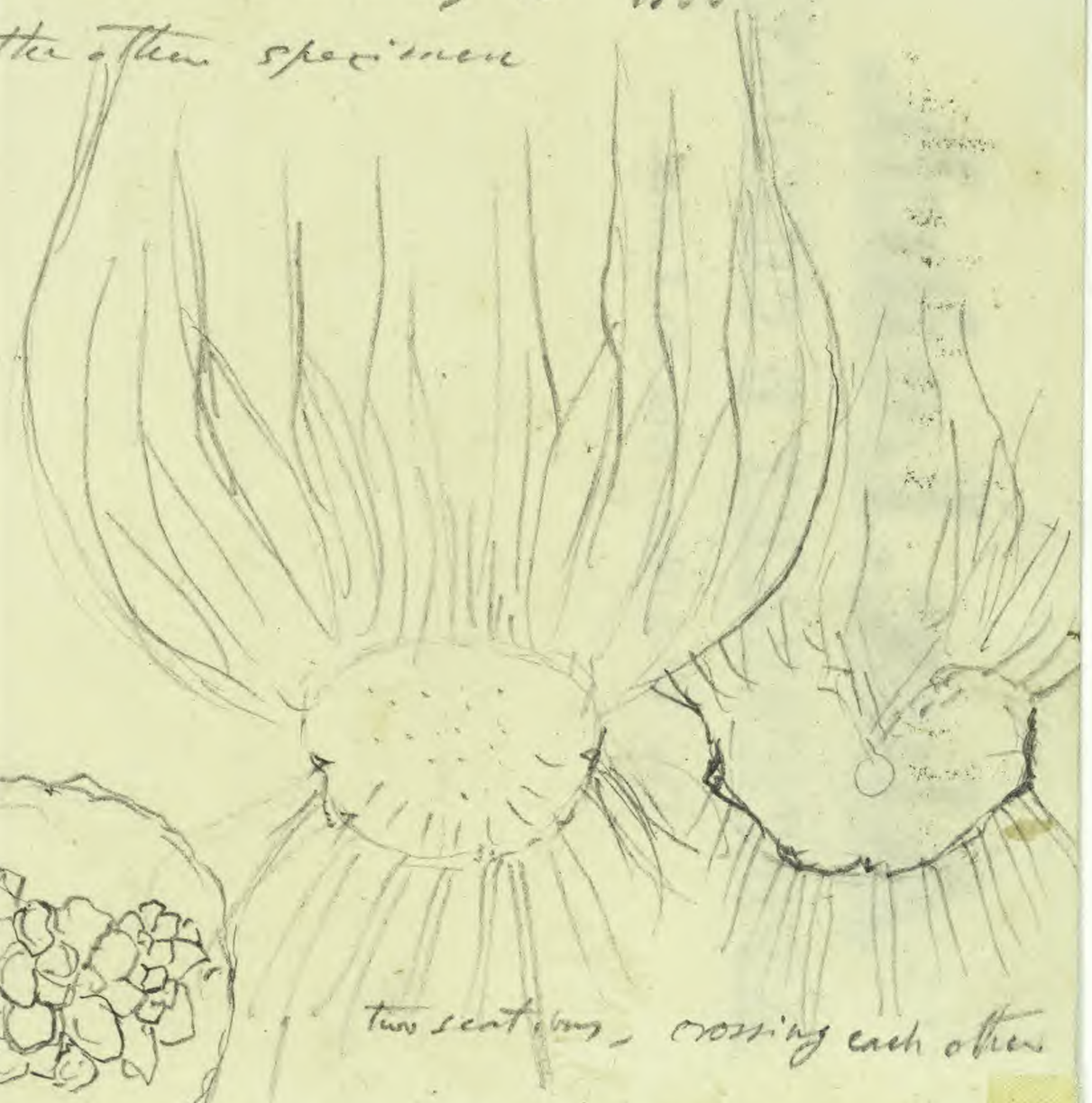
Pagination Note:
Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

Aug 22 1866

Dorstenia Contrajerva

Canby, Wilmington Aug 16 1866

leaves 50 ± one ~ 63 ± the other specimen



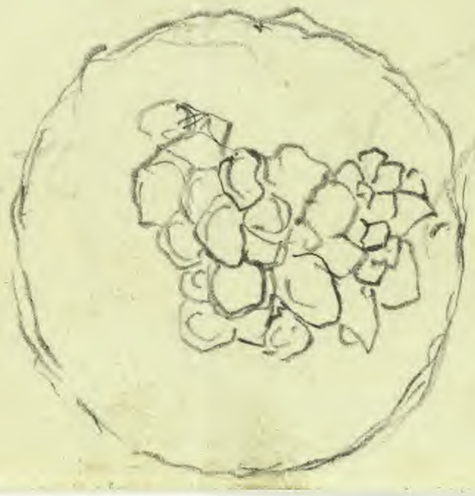
two sections, crossing each other

Spurs 0.45" – 0.50" long

X 2

sect of leaf x 10

leaf of another plant



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cm
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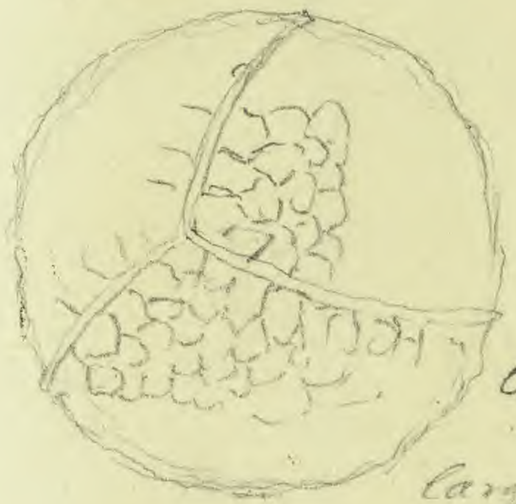
Darby near Philadelphia Dr Hunt. July 10 1866

about 60 leaves
13–14 inches
long

androspora ×415
fresh!



0.52 mm

Largest
Spores

0.45 mm

×2

I can not ascertain, which part of this bulb is old, of last year, or whether the whole, now remaining, is of this year

T. Engelmann

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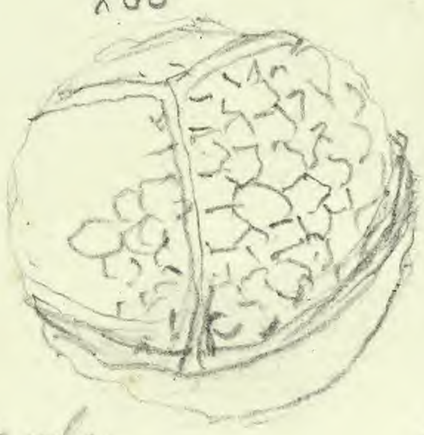
N. 3

Isoetes, Eng

Washington July 23 1866 Wm M Canby

July 28 1866

20–40 leaves, usually 30,
5–6 inches long



22–25 Trabeculae

one of the largest specimens ×2

spores ×60

0.39–0.45 mm

×415

J. S. Sagebrush coll Colo.

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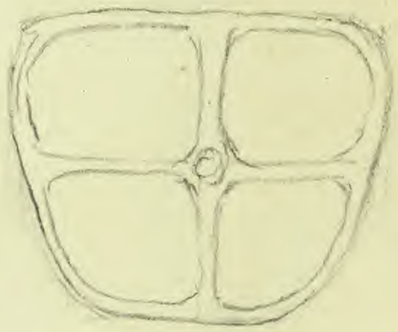
N4 Scioto Co. July 29 1866

Ouseley, Kirkmington, July 23 1866

Scale of leaf × 10



× 2.

× 60

base of leaf × 2

Spores $\frac{20-23}{60}$ mm = 0,33 – 0,38 mm diam

incomplete, poorly developed.

0,

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Boitas No. 2

June 20 1866

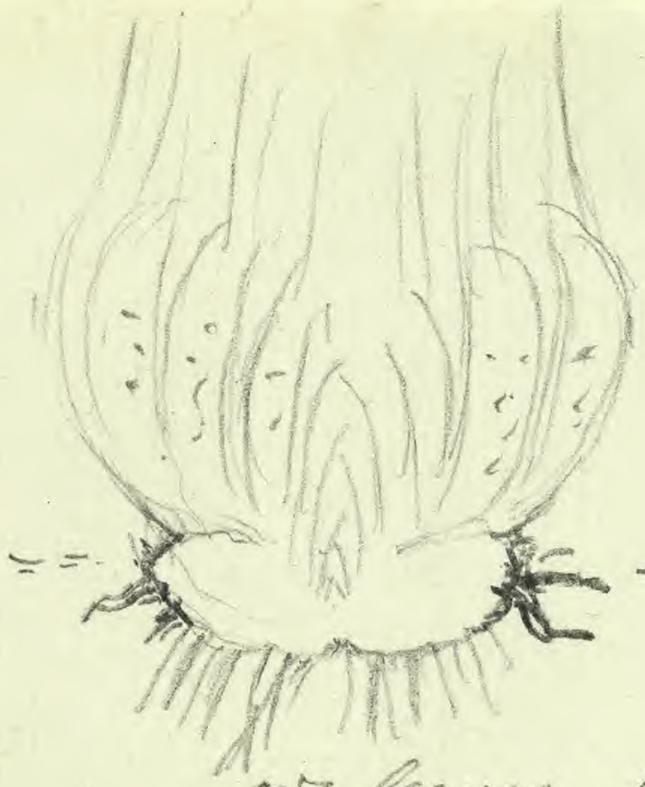
Delaware

Canby June 16

Mary Vaux
S. Engelmann

sterile

19 leaves
two halves of old bulb evidently in the act of decaying



57 leaves 12 inches long

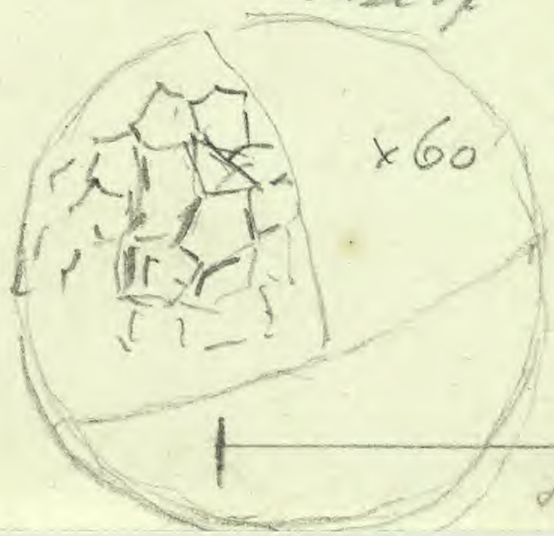
old roots seem to indicate that there is no old bulb thrown off —

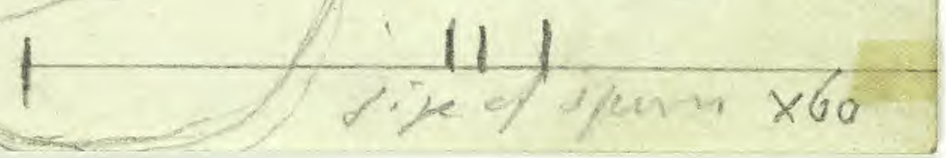
similar bulb with 47 leaves 12-13 inches long

section just below the leaves

base of leaves much larger than bulb

This same condition I have seen in 5 young sterile plants, leaves 15-20, 8-12 inches long





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cm
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ST. LOUIS, MO.

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smallest specimen received
but fertile

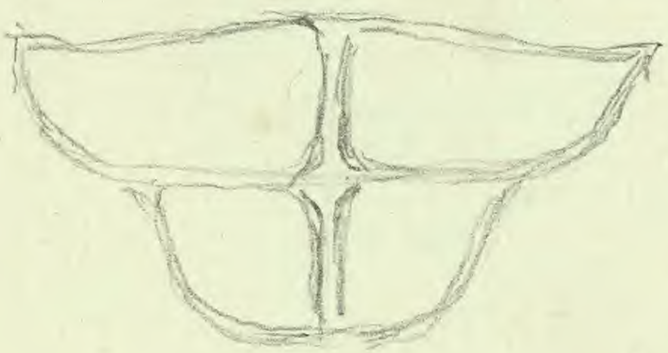
Isoëtes N. 2 June 20 1866

Delaware, Canby June 16

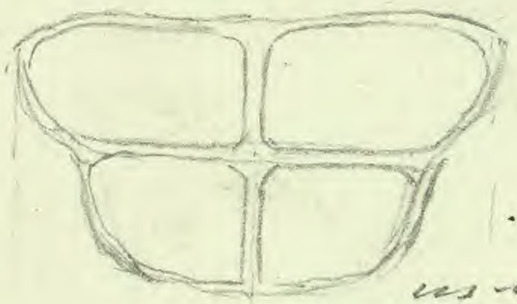
×2

17 leaves
½ foot long

×60
surface looks exactly as if bubbles had burst, leaving part of their coating on the spore as an irregular netted surface



largest leaves



usual size

×10
seat of leaf

smaller leaf

Stem
×280

N.2 somewhat smaller, with very small velum leaves seen from 17-57 flat above; bulb flat in younger plants apparently throwing off old parts, i.older ones perhaps persistat one years; spores already full grown 0.45–0.55 mm diam reticulate

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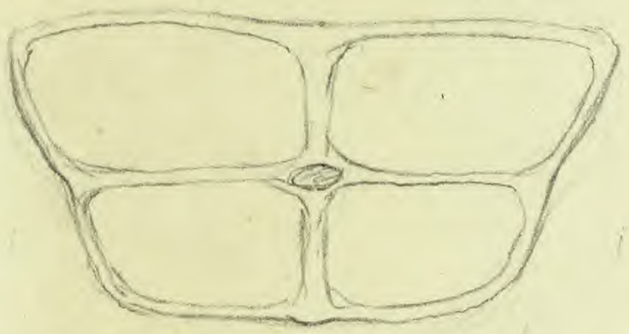
July 10 1866

Darby near Philadelphia
Dr Leavitt



sect. of largest leaves
×10

×4

macrosporangia
×4

macrosporangia—
40–50 + tubercles
350–400 spores

base of leaf ×2

sect of leaf of usual size

×10

Fr. Engelmann
mscr

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Oct. 19 1866

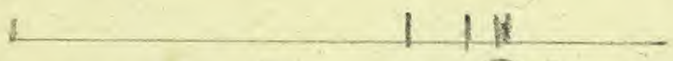
Isoëtes Engelmanni

on the Atlantic City Rail Road 4 miles from Camden

Leidy Co 1866

40 Cairns Mt Pinhoe Corry

diam of spores ×60



0.40–0.50 mm Diamt.

×415

0.026–0.028 mm by smooth.

×2

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cm
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J. Lagerheim
Washington
N. Carolina

Sept 30 1866

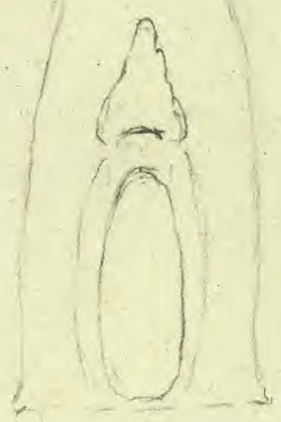
19 Sept

leaves 12 – 14 inches long

× 2

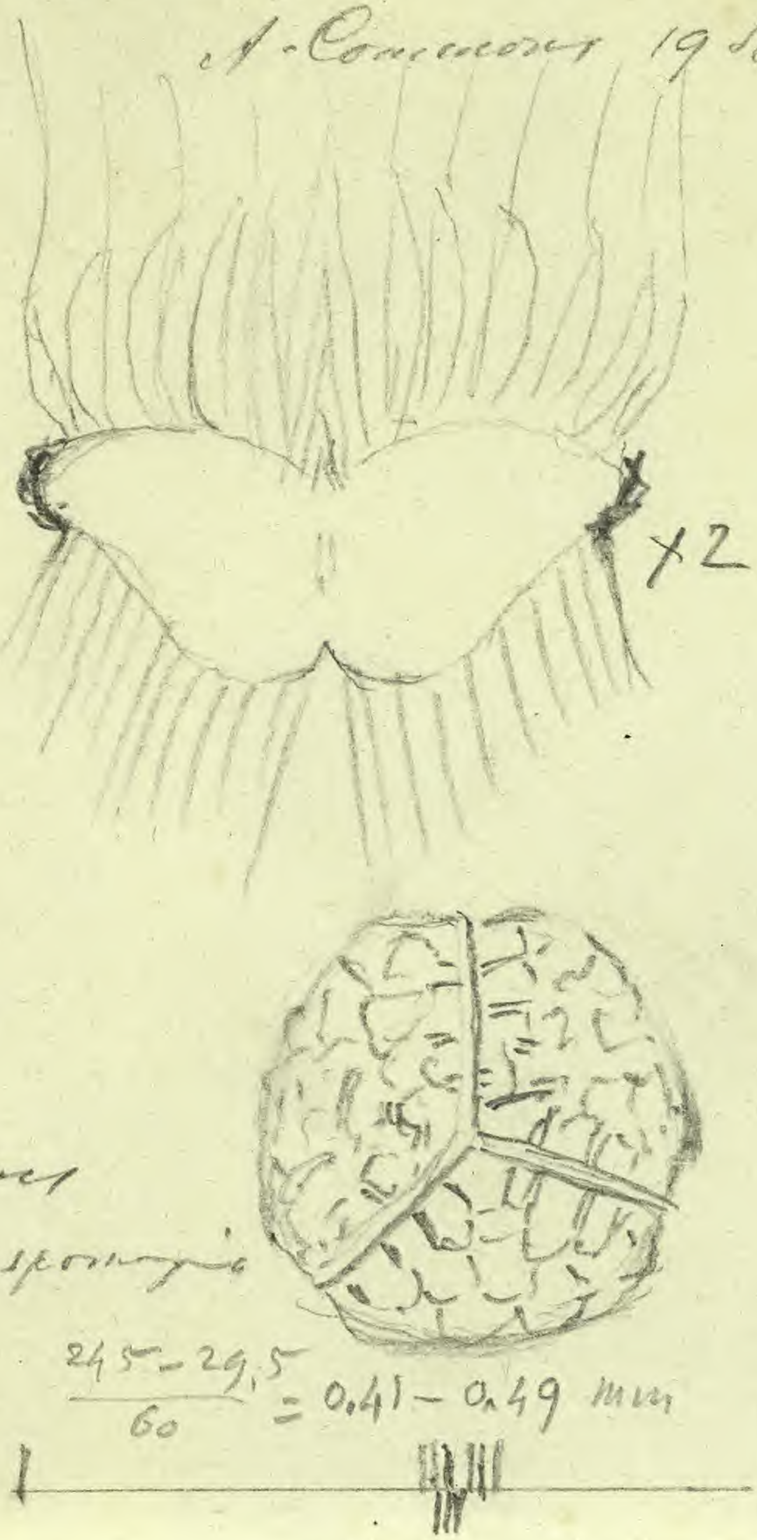
outer leaves with more sporangia

outermost smaller & now decayed



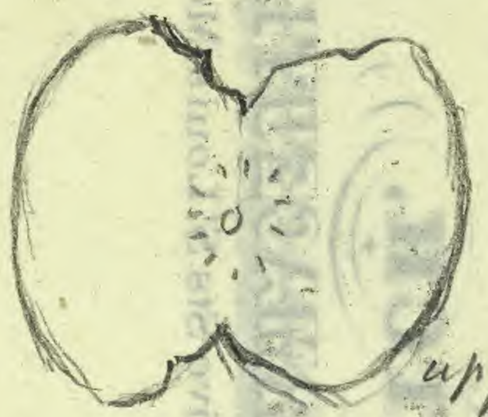
inner leaves with microsporangia

× 2

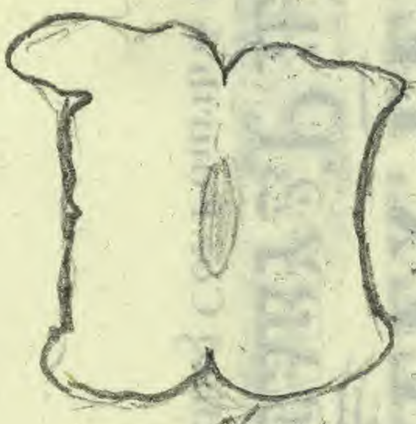


× 2

$\frac{24.5-29.5}{60}$ = 0.41 – 0.49 mm



upper

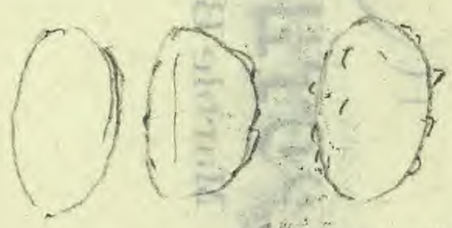


lower

horizontal section

× 2

& same field



× 415

smooth or often papillose

$\frac{11-12}{415}$ mm = 0.027–0.029

0 1 2 3 4 5 6 7 8 9 10
cm
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Isoetes Engelmanni Aug 21 1867

with the Coe:

" Isoetes lacustris L.
Insula fluvii Lecha prope Philadelph
Unio itinera C. J. Meyer
Aug. 1832

Macrospores of larger specimen
$\frac{22.5 - 25.5}{60} = 0.37 - 0.42$ mm

Sm Herb #63. Missouri

Spores not ripe, but full grown, strongly reticulate

Macrospores of small specimen
$\frac{27 - 32}{60} = 0.45 - 0.53$ mm

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Dec 14 1867

Sorites Lugelocarpi
macrospori irregulariter reticulato

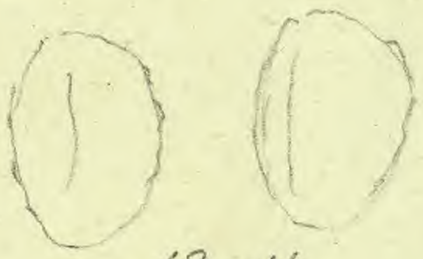
Swamps near Felton, Delaware

Wm M Canby
Sept 21 1867

Diam of macrospores

$\frac{29.5 - 32}{60}$ = 0.47–0.53 mm

15 Centers
18–20 in Canby
bulb 9 mm diam



$\frac{13-14}{\times 15}$ = 0.032 – 0.034 mm

×10

best bundles
regularly 4, very distinct
numerous stegmata

×2

no dark cells
in Sporangia

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Isoetes Engelm (incomplete spore) Dec 3 1867
mixed with I. Engelmanni
Wm Boott Arlington Brook, near Station No 6
of 6th year, all immersed, Oct 23 1867

$\frac{21.2-27}{60} = 0,35-0,45$ mm

×60

$\frac{11-12}{415} = 0.026-0.029$ mm

Stomata

×2

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MISSOURI BOTANICAL GARDEN

J. Engelmann' Nov 21 1867

(Wm Boott, Arlington Brook, all immersed, more thin 6
Oct 23 1867 of last year.

20-25 leaves 20-33 Under
Leaf bulb 1-1½ Cm.
Diam

$\frac{25-30}{60}$ = 0.42-0.50 m.m.

13700

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COR. 4TH & OLIVE STS. ST. LOUIS,

0 1 2 3 4 5 6 7 8 9 10
cm
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J. Sargent

Dec 17 1867

inventum !

Arlington Creek, Wm Scott.

$\frac{19-24}{60}$ = 0.32 – 0.40 mm

×60

spores empty !

Stomata

×2

light brown cells in sporangia

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Isaetes

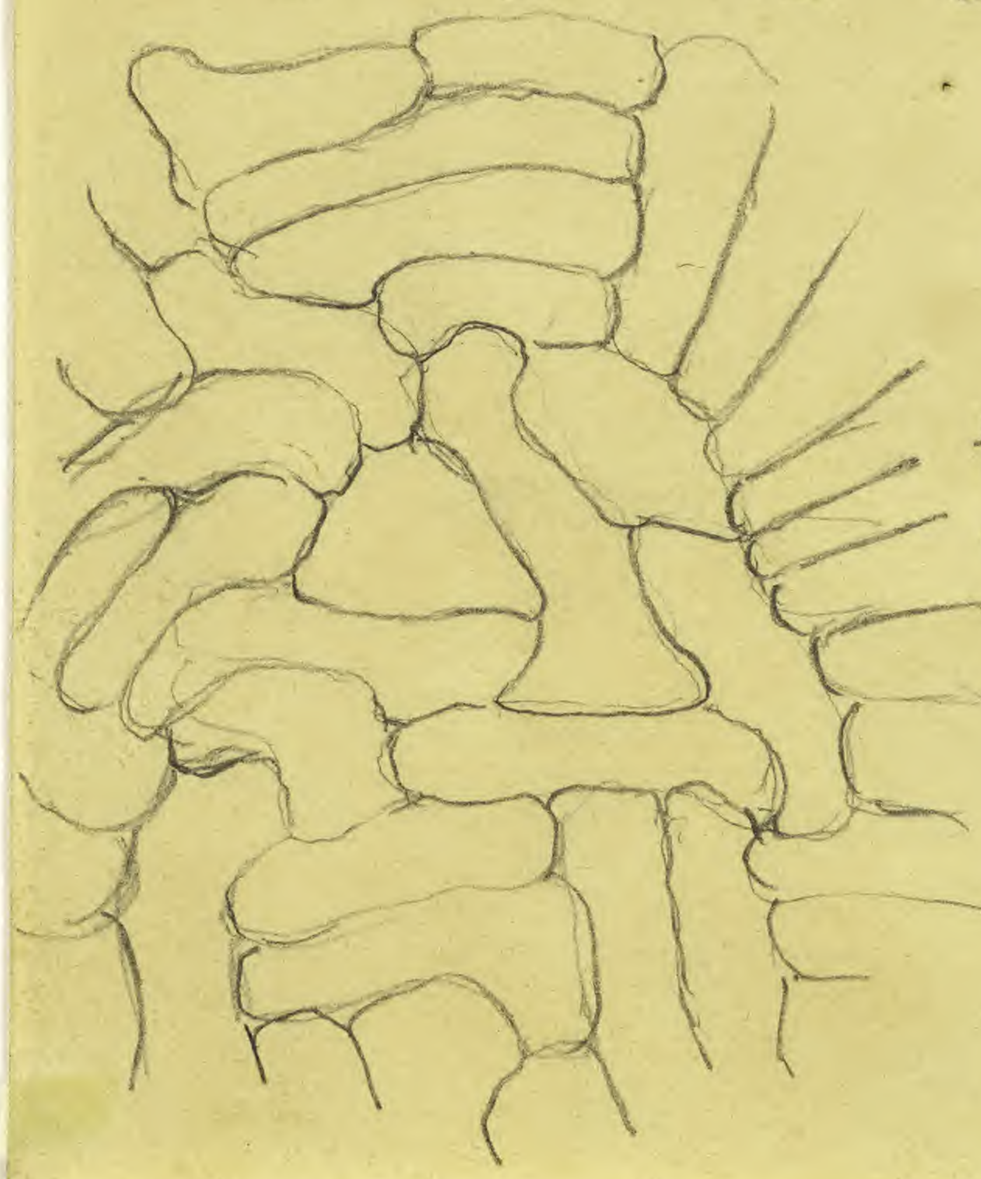
Durand mss 1865

perhaps Engelm ?
not dried

Sept 7 1867

Quick Alcohol since 2 years

$\frac{11-13}{415} = 0.027-0.031$



Sporangia without Sclerodermcells

×2

microsporangia fallen off also old part of tubulb entirely sloughed off fragments of it in the mud.

×2

microsporangia

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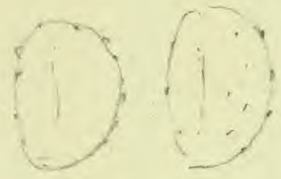
Botrychium Lunaria
Delaware, Canby April 21 1867

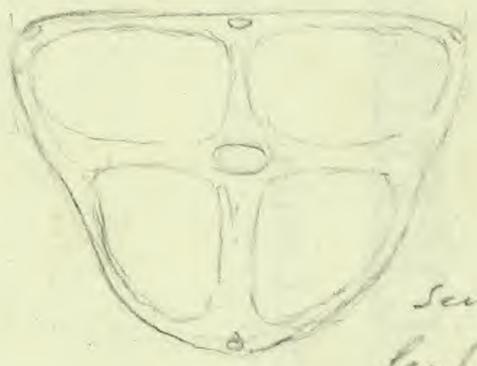
April 27 1867

×415

0.023 - 0.027 mm



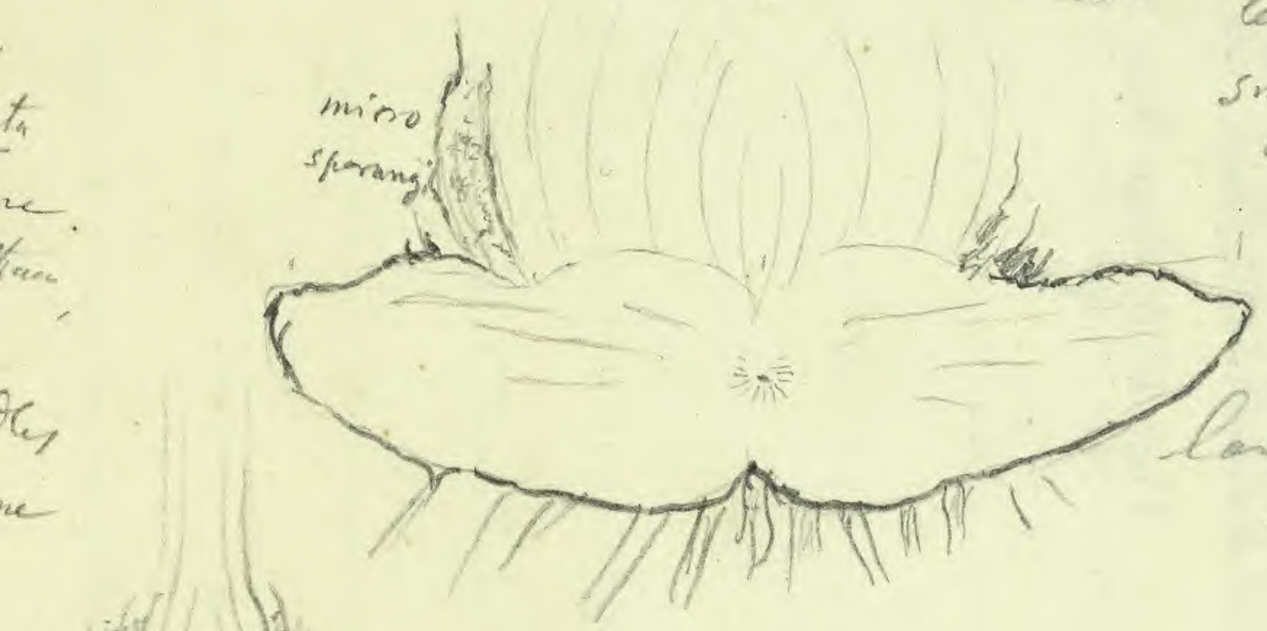
some microsporangia underaged, full of spores - inner leaves (young ones) fresh, green, some 3 mm broad, full of stomata over all the 4 cavities, none over the interstices between them, spiral cells in the central bundle; peripheral bundles very slight - upper middle one most distinct



×10

Sect of young leaf with 4 very small bundles

×2



largest specimen

×2 small specimen

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Isoetes Engelmanni April 27 1867

Delaware, County, April 21 1867

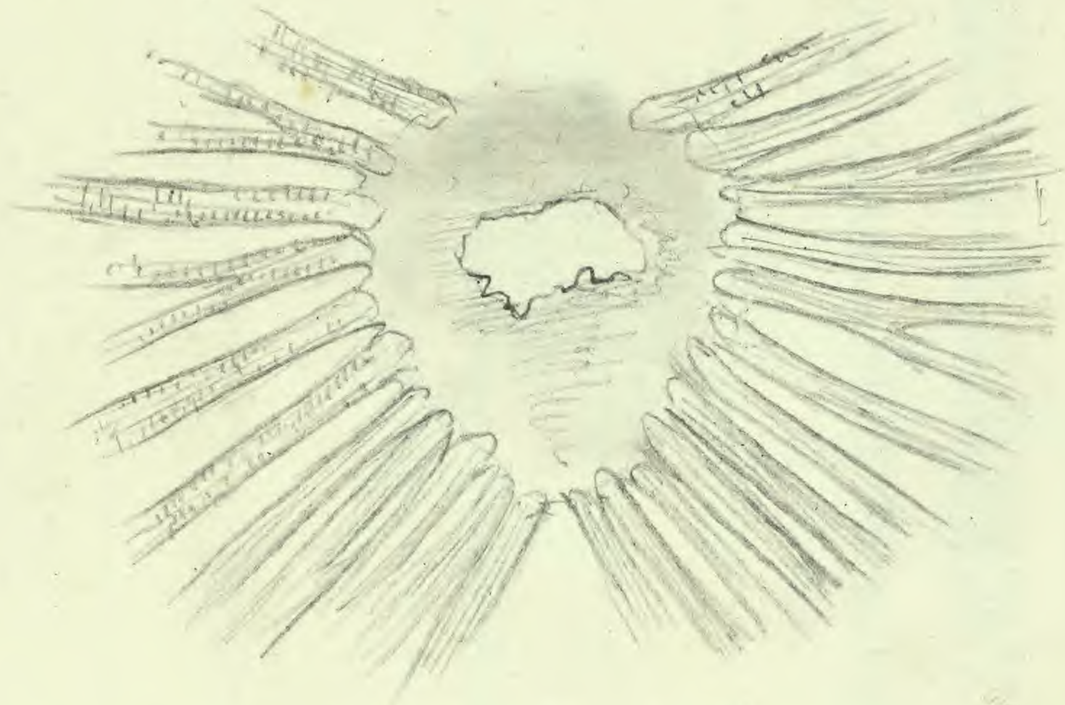
×540

Spiral vessels of the bundles which radiate from the central body

from another bundle

vertical sect of Center of bulb

×30



cellular parenchyma angulares in center of the irregularly bulbous

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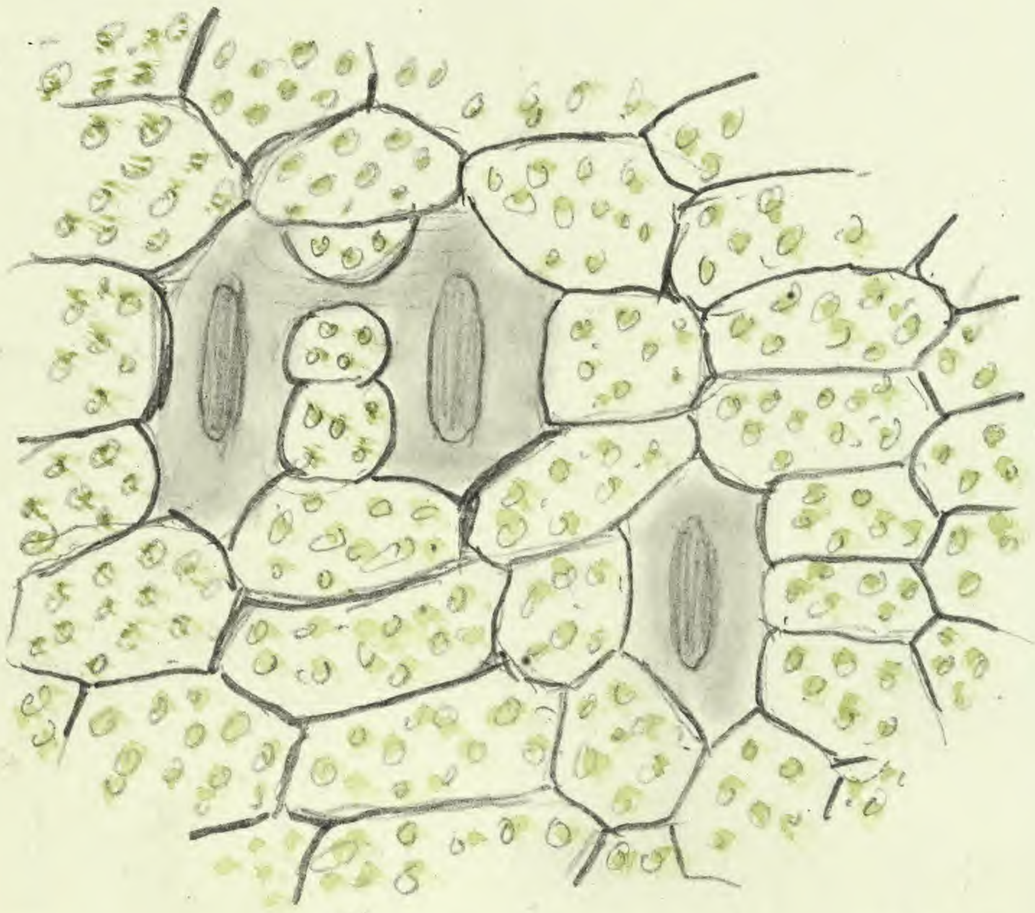
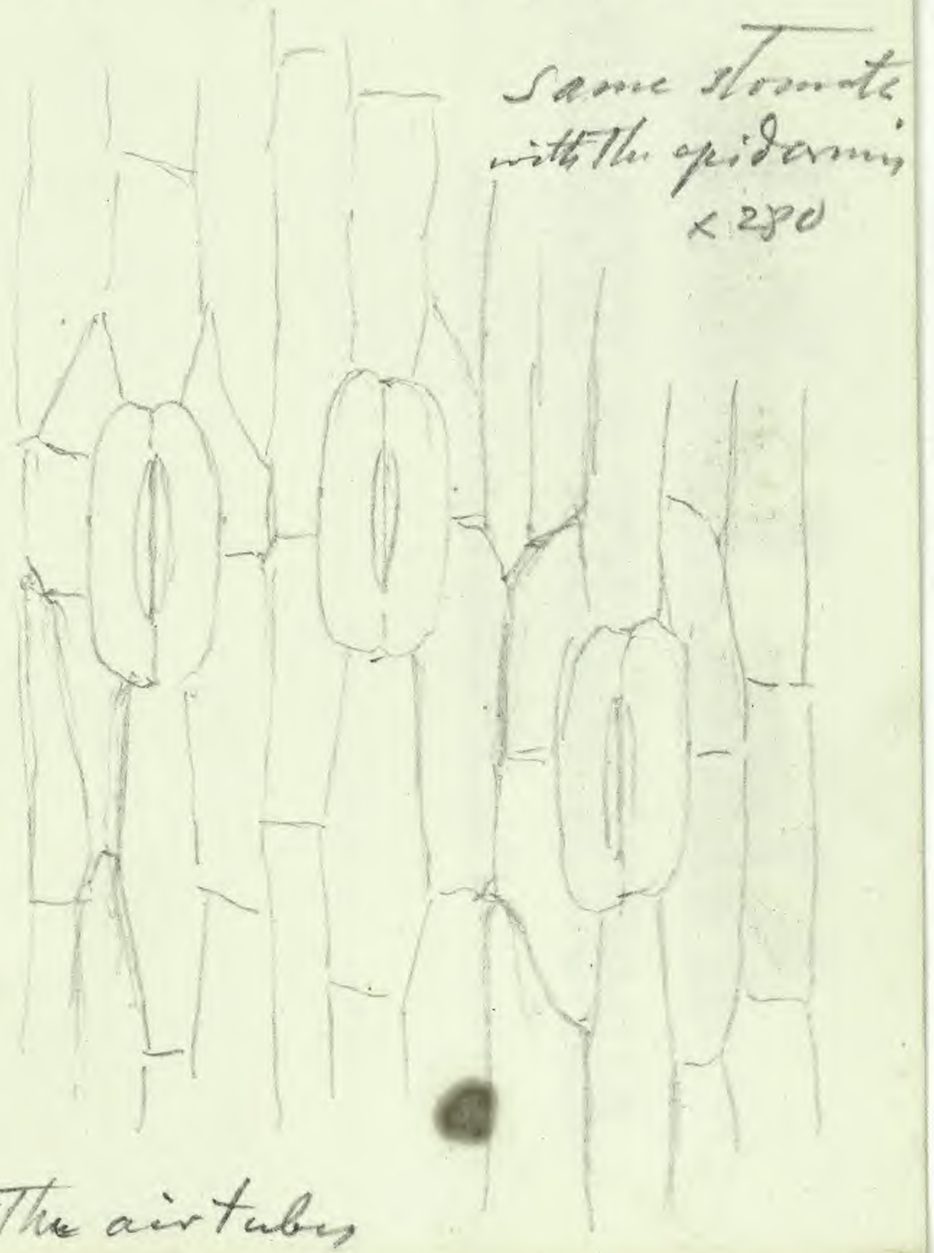
Isoetes Engelmanni. April 27 1867

part of air tube, laid open Delaware, County April 21 1867
seen from the inside

×280



Same stomate with the epidermis ×280



Parenchyma cells with chlorophyll showing the opening left by them for the stomate and the direct communication into the air tube

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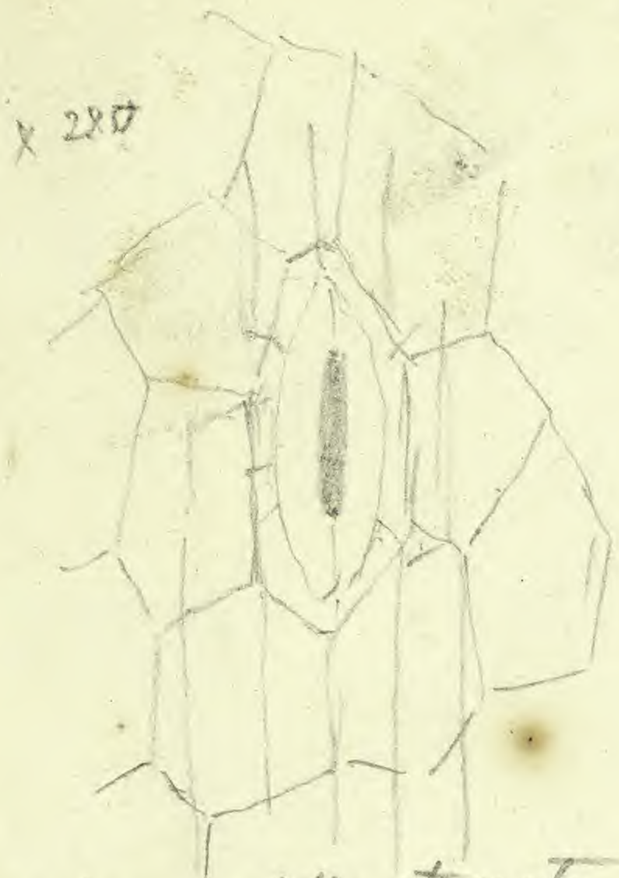
March 5 1867

Isoetes
Woburn Nov. 16 1862 W.m Boott

I. lacustris ? second crop.
incomplete spores

Diam of massive spores

23.5 – 27.1 0.39 – 0.46



epidermis with stomata

network very incomplete
more like I. lacustris

no microspores
Dr Gray

in Sporangia walls
a great many light yellowish
brown twisted cells, but their
walls scarcely thickened

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